

# इंटरनेट

# मानक

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“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8271-6-2 (1986): Quartz crystal units used for frequency control and selection, Part 6: Series BF for Oscillators, Section 2: Quartz crystal unit type BF-02 [LITD 5: Semiconductor and Other Electronic Components and Devices]



“ज्ञान से एक नये भारत का निर्माण”

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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## Indian Standard



# SPECIFICATION FOR QUARTZ CRYSTAL UNITS USED FOR FREQUENCY CONTROL AND SELECTION

## PART 6 SERIES BF FOR OSCILLATORS

### Section 2 Quartz Crystal Unit Type BF-02

**0. General** — This standard shall be read in conjunction with IS : 8271 ( Part 1 )-1981 'Specification for quartz crystal units used for frequency control and selection: Part 1 General requirements and tests ( first revision )'.

**1. Outline and Dimensions** — Holder outline shall conform to type BF [ see IS : 4570 ( Part 5 )-1984 Specification for crystal unit holders: Part 5 Metal, solder seal, two wire crystal unit, holder types BF, BF/1 and BG, BG/1 ].

**2. Marking** — See 8 of IS : 8271 ( Part 1 )-1981.

**3. Construction and Workmanship** — See 7 of IS : 8271 ( Part 1 )-1981.

#### 4. Test Schedule and Detail Requirements

**4.1 General Conditions for Test** — See 9.2 of IS : 8271 ( Part 1 )-1981.

**4.2 Test Schedule** — The sequence and grouping of type, routine and acceptance tests shall be as per 9.1 of IS : 8271 ( Part 1 )-1981.

**4.3 Detail Requirements** — The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE BF-02

SI No.	Characteristics	Requirements
i)	Type of holder	BF ( See 1 )
ii)	Frequency range	3 to 20 MHz
iii)	Frequency tolerance:	
	a) Operating temperature range	$\pm 20$ ppm
	b) Room temperature	$\pm 70$ ppm
iv)	Frequency stability	$\pm 5$ ppm
v)	Mode of oscillation	Fundamental
vi)	Load capacitance	$32.0 \pm 0.5$ pF
vii)	Reference temperature	$75 \pm 1^\circ\text{C}$
viii)	Temperature range:	
	a) Operating	70 to $80^\circ\text{C}$
	b) Operable	$-55$ to $+70^\circ\text{C}$ and $+80$ to $+90^\circ\text{C}$
ix)	Test set, calibration values and rated drive level	See Table 2
x)	Capacitance shunt	7 pF ( Max )
xi)	Resonance resistance	See Table 3
xii)	Shock [ As per 9.15 ( Severity A ) of IS : 8271 ( Part 1 )-1981 ]	
	a) Frequency change permitted	$\pm 5$ ppm
	b) Resonance resistance change permitted	$\pm 10$ percent
xiii)	Vibration [ As per 9.16.1 ( Severity A ) of IS : 8271 ( Part 1 )-1981 ]	
	a) Frequency change permitted	$\pm 5$ ppm
	b) Resonance resistance change permitted	$\pm 10$ percent
xiv)	Ageing	
	Frequency change permitted	5 ppm

TABLE 2 TEST SET CALIBRATION VALUES AND RATED DRIVE LEVEL  
[ Table 1 (SI No. ix) ]

SI No.	Frequency Range	Calibration Values			Rated Drive Level	Test Set
		Resistance	Crystal Current	Resistor Voltage		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		MHz	ohms	V	mW	
i)	From 3 to 5.1	50	10	—	$5.0 \pm 1.0$	TS-330/THM
ii)	Over 5 to 7.5	22	15	—	$5.0 \pm 1.0$	
iii)	Over 7.5 to 10	13	20	—	$5.0 \pm 1.0$	
iv)	Over 10 to 20	10	—	0.22	$5.0 \pm 1.0$	TS-683/TSM

TABLE 3 RESONANCE RESISTANCE  
[ Table 1 (SI No. xi) ]

Frequency Range	Maximum Resonance Resistance
(1)	(2)
MHz	ohms
From 3 to 4	40
From 4 to 5	35
Over 5 to 6	30
Over 6 to 7	28
Over 7 to 8	25
Over 8 to 9	23
Over 9 to 10	20
Over 10 to 15	18
Over 15 to 20	15

EXPLANATORY NOTE

This standard covers the requirements of crystal unit, quartz style QC-25 of JSS 50907 (1971) 'Detail specification for crystal unit, quartz, styles QC-24 and QC-25', issued by the Directorate of Standardization, Ministry of Defence (India).